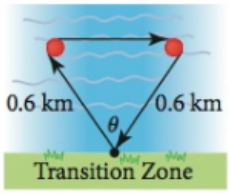
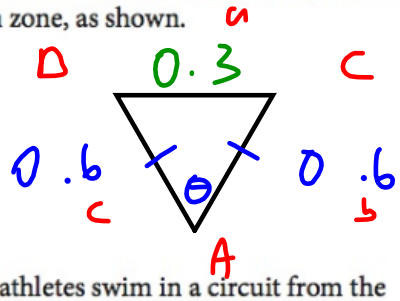
Map 4C
Applications of
Trigonometry
2.5 p. 120-125

Example 1 **Set a Swim Course**

The first leg of an Olympic triathlon is a 1.5 km swim. To set the course, which is in the shape of an isosceles triangle, two buoys are placed in the water 0.6 km from the transition zone, as shown.





To complete this leg of the race, athletes swim in a circuit from the transition zone to the first buoy, then to the second buoy, and back to the transition zone. What is the angle, θ, between the lines of sight from the transition zone to the buoys to the nearest degree?

$a^2 = b^2 + c^2 - 2bc\cos\angle A$

Sep 27-7:35 AM

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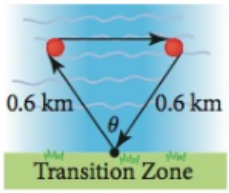

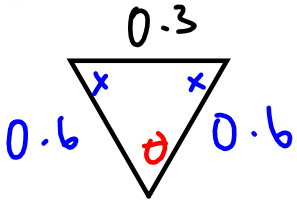

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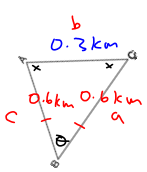
120 MHR • Chapter 2

Sep 27-7:35 AM

Example 1 p. 120

p. 115



a = 0.6
b = 0.3
c = 0.6

$b^2 = a^2 + c^2 - 2ac\cos\angle B$

$(0.3)^2 = (0.6)^2 + (0.6)^2 - 2(0.6)(0.6)\cos\angle B$

$0.09 = 0.36 + 0.36 - 0.72\cos\angle B$

$0.09 = 0.72 - 0.72\cos\angle B$

$0.09 - 0.72 = -0.72\cos\angle B$

$\frac{-0.63}{-0.72} = \frac{-0.72\cos\angle B}{-0.72}$

$(0.8750) = \cos\angle B$

$\cos^{-1}(0.8750) = \angle B$

$29° = \angle B$

The angle between the lines of sight of the two buoys is 29°

$\frac{180 - 29}{2} = \frac{151}{2}$

$= 75.5°$

angle b/n the other buoys

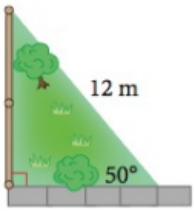
Feb 2-12:30 PM

Example 3 p. 123

Example 3

Garden Design

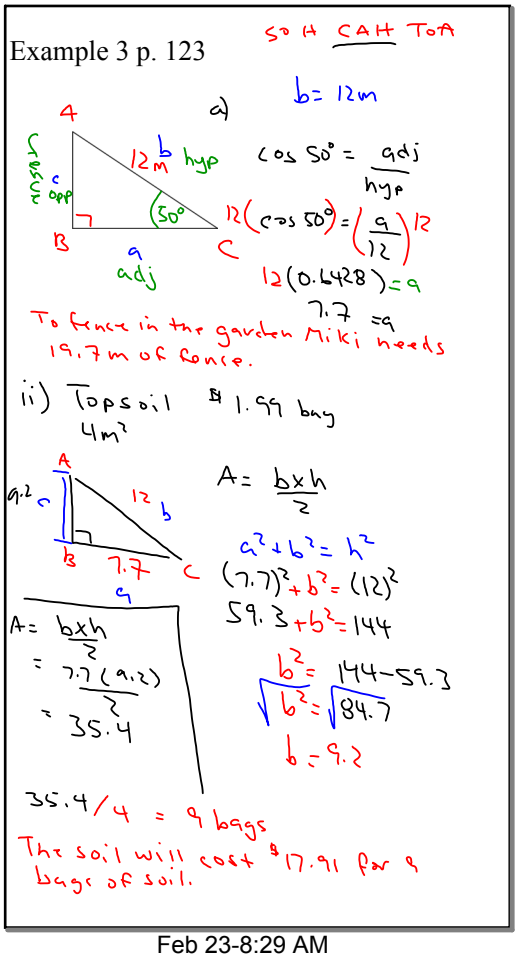
Miki is making a new garden in the corner of her backyard. It will be against a privacy fence and a patio walkway, as shown.



a) Miki wants to build a fence along the front and patio sides of her garden (but not along the privacy fence). What length of fencing will she need to the nearest metre?

b) A bag of topsoil costs $1.99 with tax and covers an area of 4 m^2. How much will it cost for Miki to cover her garden with a layer of topsoil?

Sep 27-12:18 PM



Feb 23-8:29 AM

Key Concepts

- several tools available; SOH CAH TOA, $a^2 + b^2 = h^2$, sum of interior angles of a triangle, Sine Law and Cosine Law

- identify type of triangle (right or non-right)
- identify all knowns

Feb 21-7:20 AM

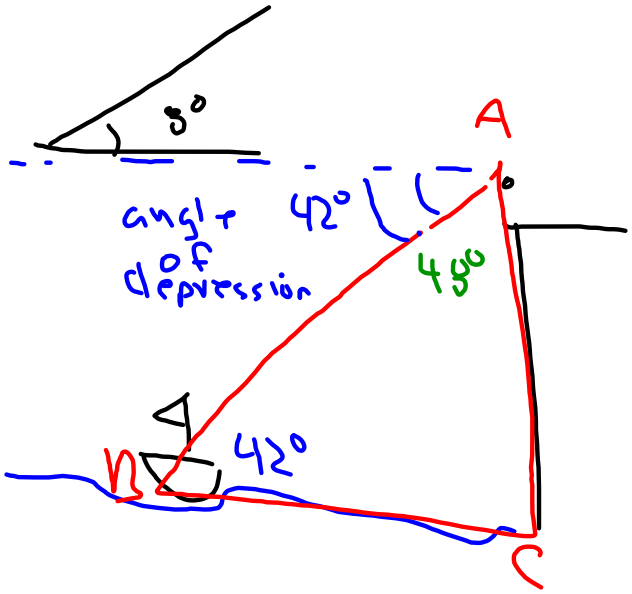
Hmk p. 126-129
q. 1, 5-7 & 11

Test Tuesday

Ch 2 Test Review
p130-131
q 1-15

p134-135
q 1-10

Feb 14-2:53 PM



Feb 27-9:40 AM

q. 4 p. 134

Rectangular Prism

350 ml => 350 cm³

length double width where $l = 2w$

$V = A_b \times h_{total}$

$V = (l \times w) \times h_{TOTAL}$

$V = (2w(w)) \times h_{total}$

$V = 2w^2 \times h_{total}$

$350 = 2w^2 \times h_{total}$

$\frac{350}{2w^2} = h_{total}$

$SA = 2(w \times h) + 2(l \times h) + 2(l \times w)$

$SA = 2(w \times \frac{350}{2w^2}) + 2(l \times \frac{350}{2w^2}) + 2(2w \times w)$

$SA = 2(\frac{350}{2w}) + 2(\frac{700}{2w}) + 2(2w^2)$

$SA = \frac{350}{w} + \frac{700}{w} + 4w^2$

$SA = 4w^2 + \frac{1050}{w}$

Graph to solve for w

Feb 27-9:47 AM

p. 65 q. 15

$V = 2500 cm^3$

$V = A_b \times H_T$

$V = (S \times S) \times S$

$V = S^3$

$\sqrt[3]{2500} = \sqrt[3]{S^3}$

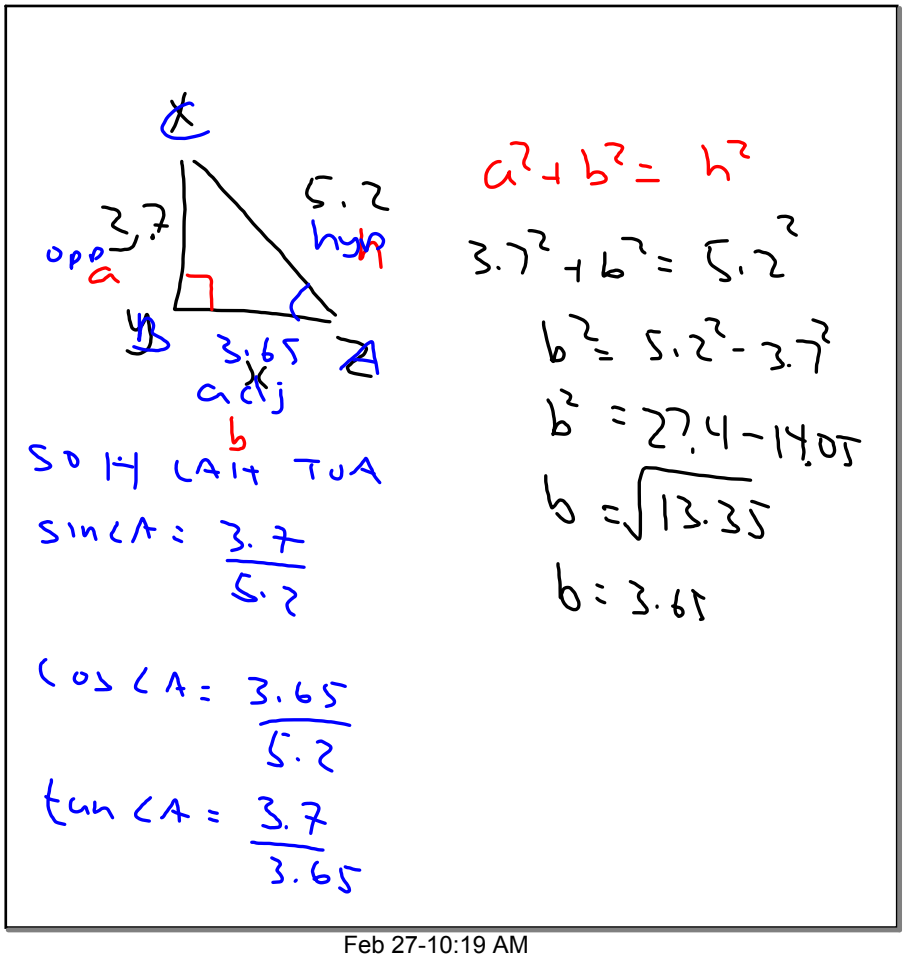
$13.6 = S$

$SA = 6(S \times S)$

$SA = 6S^2$

$SA_{min} = 6(13.6)(13.6)$

Feb 27-10:15 AM



Feb 27-10:19 AM